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**Comments From  
The Rural Policy Research Institute  
Rural Telecommunications Panel  
September 14, 1998**

**To the:  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

**In the Matter of**

**Inquiry Concerning the Deployment of  
Advanced Telecommunications  
Capability to All Americans in a Reasonable  
and Timely Fashion, and Possible Steps  
to Accelerate Such Deployment  
Pursuant to Section 706 of the  
Telecommunications Act of 1996**

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In this response, the Rural Policy Research Institute (RUPRI) Rural Telecommunications Panel considers, broadly, the need of rural communities for advanced telecommunications services and the extent to which that need is presently unmet. Our response is framed by the understanding that: (1) low population density and remoteness, while common deterrents to telecommunications access, are not inherent deterrents to other equally desirable goals, such as quality of life; (2) addressing 'rural' as a singular entity masks the underlying diversity of rural people and places; and (3) quantitative estimates of demand for advanced telecommunications services in rural areas do not exist, necessitating qualitative and subjective, but equally compelling, arguments for the rational rural expansion of telecommunications infrastructure.

1. **ARE THERE MARKET INCENTIVES, OR WILL ONES SOON EXIST, THAT WILL INDUCE FIRMS TO REACH SCHOOLS AND CLASSROOMS, PEOPLE IN RURAL AREAS AND INNER CITIES, AND OTHER CUSTOMERS WHO ARE TRADITIONALLY THOUGHT TO BE LESS PROFITABLE? [NOI ¶ 8]**

At this juncture, it is difficult to assess whether sufficient market incentives exist to assure that advanced telecommunications services mandated under the Telecommunications Act of 1996 will be made available to rural communities. In many rural areas, it is likely that sufficient market incentives will never exist to assure the extensive deployment of advanced

telecommunications services to the people and institutions which require them. A regulatory policy that assumes market forces alone will fulfill Congressional intent for rapidly deployed advanced telecommunications services to all Americans may inhibit those services actually being introduced into rural communities. The problem may be increased by those who belabor the artificial creation of market incentives through regulatory manipulation without at least paying equivalent attention to the need to preserve and enable those circumstances under which important non-market incentives may operate.

The current demand for advanced telecommunications services is not being met in rural America. This raises serious concern regarding prospects for meeting the longer term demands. However, in some rural areas, schools may gain access to two-way interactive television capabilities, or citizens may have toll-free access to the Internet, not because of an immediately attractive market incentive, but as the result of a perceived community obligation on the part of providers. In a regulatory environment in which every service is driven to cost, such obligations may become impossible to fulfill. However, insofar as a provider sees an opportunity--even an indirect opportunity--to improve the economic well-being or sustainability of the communities it serves, it only makes good economic sense to provide the services which the community requires to the extent that the provider does not experience a costly disincentive.

The "market" for rural telecommunications services to which many small scale providers respond is locality-specific. It serves not a generalized demand, but a demand which is generated from a specific need in a specific place. The most appropriate and needed services may vary greatly from one locality to another. Given this locale-specific need and demand, providers have a strong incentive to respond to this market, thereby ensuring the survival or improving the economic sustainability of the community or region served. These are circumstances to which the small provider is inextricably linked.

Where rural economic development opportunity and telecommunications infrastructure are intertwined, the provision of advanced telecommunications services is less a marketable product than a necessity for business retention and expansion. Such demand is not easily measured, cannot be quantified, and is therefore not readily acted upon by a provider whose economic future is not dependent on the small communities it serves. Waiting for documentation that a market exists before building a requisite infrastructure is unlikely to result in the timely deployment of advanced telecommunications services in rural America.

It is difficult in a global economy driven largely by market incentives to appreciate the nuances of the marketplace in many rural areas. Optimistically, one might assume that some proportion of the 1,847 new CLEC certificates authorized within the last year<sup>a</sup>, if afforded the opportunity, will serve rural America. Until such time that it can be ascertained, however, such conjecture may be naive.

2. PARTIES SHOULD ALSO CONSIDER WHETHER CONGRESS INTENDED THE MEANING OF "ADVANCED TELECOMMUNICATIONS CAPABILITY" TO CHANGE

## OVER TIME. . . [NOI ¶ 15]

The best interests of rural Americans are likely to be served by a definition of advanced telecommunications services which remains flexible, non-technology specific, end-user defined, and which is continually pushed toward the limits of technical capability.

We would suggest that the Commission investigate the merits of a "Rural-Urban Comparability Index," monitored over time, to ensure that the "median service" across urban and rural areas is substantially equivalent. Such an index would allow for the existence of "outlying services" on both extremes--both rudimentary and leading edge--but it would allow for a quantifiable measurement of the extent to which rural access to advanced services compares to an escalating national median standard.

### 3. IS THERE ANY REASON TO EXPECT A SHORTAGE OF BACKBONE OR LAST-MILE ADVANCED TELECOMMUNICATIONS CAPABILITY WITH ACCESS TO, OR IN, RURAL AREAS? [NOI ¶ 26]

While some rural states, notably Montana, have taken the lead in ensuring automatic Lifeline enrollment for specific groups, by linking enrollment to Medicare eligibility, it is doubtful that POTS will be able to provide the speed and bandwidth needed to install even such minimal services. Thus, traditional regulatory policies may prove inadequate in fostering the development of advanced networking technologies. Cooperative arrangements such as cost-sharing, perhaps involving both the public and private sector, may be required. The FCC should consider initiatives which support the movement toward advanced services in a variety of ways when the marketplace is unable to provide sufficient motivating incentives to competitive LECs.

### 4. HOW CAN WE CREATE INCENTIVES FOR SUCH COMPETITIVE ENTRY? CONVERSELY, HOW WILL CREATING SUCH INCENTIVES AFFECT THE DEPLOYMENT OF ADVANCED SERVICES IN THE LONGER TERM? [NOI ¶ 56]

Competitive services may be provided using a modified linchpin model<sup>1</sup> in ensuring the entry of advanced services in rural communities. Regulators can encourage competition across technologies in rural areas so that wireline and non-wireline providers may be integrated into 'service depots'. At the same time regulators must be ready to re-evaluate the conception of

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<sup>1</sup> A modified linchpin model is one in which regulatory policy ensures that dominant carrier unbundle all parts of the network to provide the basis for building localized competition within a portion of or node on the network. In this scenario, the rural community would become a 'service depot' on a larger network where the ILEC serves as the linchpin. Connection at the service depot would be possible for any competitor, using any technology. The cost associated with access to the network would be no more than the costs associated with rate structures approved by state PUCs for POTS or the costs charged back to the ILEC for enhanced services. In this model, any competitor is simply attaching itself to the linchpin. Service providers either compete with the ILEC where the dominant carrier is providing a service or introduce a service encouraging the ILEC or others to start competing for that service. (Bernt, Phyllis. The Changing Obligation to Serve)

a dominant carrier in light of the statutory requirements of section 706.

Previous studies undertaken by the Office of Technology Assessment suggest that there are a number of reasons for reconfirming the principles of common carriage. Common carriage enhances competition and can facilitate interconnection while reducing transactional costs associated with competitive service installation. Regulators should be mindful of the ability of dominant LECs to block true competitive entry. Incentives must be developed so that dominant networks act as a carrier's carrier to provide reach into inadequately served rural areas. At the same time, it is necessary to facilitate competition with all competitors from a variety of new technologies, including other-than-local-exchange-carrier networks (OTLECs). Regardless, *all* competitors must be required to unbundle networks on a non-discriminatory basis, where necessary. Unbundling and facilitating broader use of the existing networks is essential.

The scope of what constitutes a dominant network should be based on all levels of service provision. For example, as new technology entrants provide service a dominant network might become a power utility or cable provider. The Telecommunications Act provides for the development of a modified linchpin approach. Section 706 demands that all technologies are allowed to compete for provision of service. Regulatory barriers must be dismantled where they still exist, to ensure that these goals are enabled.

It may be instructive to view rural communities as service roads along the information superhighway. The conceptualization of a 'service depot' is one that is similar to the service centers scattered all along the interstate highway system. Dominant carriers must ensure that rural towns have the potential to become service depots, providing unbundled comparable local loop interconnection to any advanced telecommunications service provider and any interconnectable technology. In such a model, the costs associated with gaining access to the unbundled network must be comparable to the costs shouldered by the carrier's carrier. In other words, the costs associated with network access through such service depots should not be differentiated by user.

While regulators may regard the linchpin network as a transitional step toward full competition, it is difficult to envision even long-term movement toward facilities-based competition among variably sized competitors in rural areas. Thus, while all areas of the United States could benefit from competitive service offerings, if there were diverse opportunities to create intermeshed, seamless networks in lieu of (or preceding) facilities-based competition, rural areas would undoubtedly enjoy a quicker introduction to advanced telecommunications services.

5. WILL DEMAND FOR ADVANCED SERVICES TEND TO BE HOMOGENEOUS, OR WILL IT TEND TO VARY AMONG DIFFERENT REGIONS, NEIGHBORHOODS, AND TYPES OF CUSTOMERS (BASED ON AGE, EDUCATION, INCOME, ETC.) EACH WANTING A DIFFERENT MIX OF VOICE, DATA, GRAPHICS, AND VIDEO? [NOI ¶ 60]

One cannot assume commonality of use of telecommunications capabilities across rural America. The needs, the circumstances, and the current ability to use the technology are too divergent. This is not to assume, however, that there are communities or persons, institutions, or businesses within communities that will not require and utilize, if available, the most advanced telecommunications services. The fact that the need is not uniformly extensive does not justify lagging access, higher costs, or poorer service. Legislators and regulators should consider the rural need for equal *access* to advanced services at rates which are comparable to urban dwellers, irrespective of distance. Incorporated into the development of policies surrounding equal *access* to advanced services should be the awareness that equal *access*, e.g., availability, does not mean ubiquitous deployment. In this sense, every community should have the capability to purchase advanced services as they require, whether it be dedicated broadband Internet access, a continuous presence distance learning network, or a teleradiology application, but the telecommunications services deployed in every community will not be identical. The method or mode of transmission is less relevant than the functionality of the access as defined by the end-user. Various providers may choose to achieve end-user required functionality differently, and in this sense it is the fungible infrastructural capability of all providers which should be promoted.

Furthermore, regulators should ensure that the economic transaction costs associated with accessing and manipulating information--whether that information is in the form of voice, data, graphics, or video--is distance insensitive. Perhaps the most significant factor in fulfilling the statutory requirements of section 706 will be to ensure that the transactional costs associated with network operations are based on value and not distance.

6. ARE SCHOOLS' NEEDS FOR ADVANCED TELECOMMUNICATIONS CAPABILITY, IN TERMS OF BOTH QUANTITY AND QUALITY, LIKELY TO BE THE SAME AS THOSE OF THE AREAS SURROUNDING THEM? [NOI ¶ 64]

DOES EXPERIENCE . . . POINT THE WAY TO SPEEDY DEPLOYMENT OVER THIS COUNTRY IN GENERAL AND IN SPECIFIC INSTANCES SUCH AS SCHOOLS AND LIBRARIES? [NOI ¶ 9]

Whether community access to advanced telecommunications services begins with an initial request by a school, a hospital, a government agency, an industry, or citizens, the notion of 'anchor tenant' aptly applies. An individual entity can serve as the instigator through which broader diffusion of the technology occurs. Again, the important issue is that each community have *access* to the telecommunications capability appropriate to its needs. If a school, for instance, makes the initial request for broadband Internet access or, with other schools, requests a distance learning network, broader demand for the service (or similar services utilizing available bandwidth) is sure to follow from other entities within geographical proximity or the sphere of influence of the early adopter. In this sense, schools' needs for advanced telecommunications capability are likely to be very similar to that of the community in which they are located. The demand for the service, however, may not

perfectly coincide with respect to time.

Rural America is not well served if network expansion is delayed until such time that sufficient demand is expressed to enable cost recovery and profitability. By the time that such demand is identified, quantified, and affirmed, rural America will already have been left behind—once again. Telecommunications providers in most rural areas will be unlikely to justify network expansion utilizing an 'economies of scale' model which forces profit comparisons between high density metropolitan areas, and remote, low density rural areas. It is incumbent upon rural telecommunications providers to *invest* in bandwidth; it is incumbent upon federal and state regulatory bodies to insure that such investment is not penalized.

7. TODAY, ARE RURAL COMMUNITIES MORE DEPENDENT ON TELECOMMUNICATIONS SERVICES THAN OTHER COMMUNITIES? [NOI ¶ 65]

In general, rural communities are more heavily dependent on telecommunication services than their urban and suburban counterparts. However, with notable exceptions, the quality and quantity of services available in rural communities are not equal to those of more populated areas. Several features of rural life suggest that the accessibility of advanced telecommunications services is more critical to the sustainability of rural America:

- (a) The smaller scale of rural communities and the great diversity of their circumstances makes them considerably more vulnerable to national and international economic restructuring. Improved communications offer an important resource to mitigate this vulnerability.
- (b) Many rural communities have lost much of their traditional economic infrastructure. If advanced telecommunications capabilities are not accessible to rural areas, the opportunity to replace lost economic infrastructure will have been missed.
- (c) Rural communities, because of their geographical differences from metropolitan areas, have needs that are not being met through existing traditional, non-telecommunications infrastructure. The infrastructural arrangement of urban and suburban areas provide a symbiotic force to cluster services, e.g., medical, governmental, development, in ways that are unavailable to the rural community. For example, metropolitan community transportation services provide access to medical help and lifeline services to older Americans. These same services are rarely available in either the same quantity or quality to rural residents. Short of access to telemedical capabilities, rural inhabitants must travel extended distances to attain many medical procedures or must wait until a specialist will travel to the region. With telecommunications comes the opportunity to bridge the distance and transportation problems by providing telemedical expertise to rural health practitioners. Using enhanced telecommunications services, specialists at regional medical centers can provide expert diagnosis and consultation with local service providers. Governmental agencies can provide outreach services to rural areas. Older Americans and persons with limited mobility can use telecommunications services to enhance their interaction with health care and other human service

providers.

With respect to education in rural America, access to distance learning networks can mean the difference in many communities between further consolidation and the continued educational viability of the small, local school. Indeed, where schools cease to exist, more often than not, so do the communities in which they were located.

- (d) Telecommunications technology can further enable a deconcentration of population and economic investment. Within rural America, just as in urban America, centers of electronic commerce can exist. SAT scores and other objective measures of educational achievement suggest that there is much to applaud regarding the quality of skilled labor, leadership, and entrepreneurial skills in rural America. In the past this has meant the outmigration of much of the human capital originating in rural America. Today, whether in existence, being deployed, or still hoped for, the promise of telecommunications is helping to spur a rural Renaissance. Those telecommunications providers who are progressive enough to realize the ongoing resurgence of population in rural areas and who are willing to provide the requisite telecommunications services in support of bandwidth-intensive connectivity to the broader world will stand to gain.

These facts suggest the greater importance of telecommunications services to rural communities. While it can be said that telecommunications may be an answer to the rural penalty in a market-based economy, i.e., distance from the market, by their very definition rural communities, the people who comprise them, and the enterprises that provide the basis for their economic activities are often removed from the economic mainstream. As telecommunications technology continues to diminish 'space', access to that technology becomes essential for economic development. The future economic fate of many rural communities lies in the extent to which access to telecommunications technology will allow the transformation of the traditional industrial and business sectors. Those rural communities lacking access to required advanced telecommunications services will fail to become participating partners in the global economic mainstream.

In earlier times, when rural economies were propelled by the sale of raw materials to the city, there existed a reciprocal dependency between urban and rural economies. In rural communities this economic co-dependency enabled the creation of a local economy which revolved around providing support for urban-based industry. The decline of natural resource-based industries, e.g., family farms, forestry, quarrying, oil and gas production, etc., and the resultant decline in employment in those industries, has had a profound effect on many rural areas. With the economic foundation of such communities shaken, if not broken, the sustainability of much of rural America was called into question. This trend was uninterrupted until the 1970s when, for the first time in the 20th century, more people moved from metropolitan to rural areas. With a downturn in rural in-migration in the 1980's, the



1990's once more saw a resurgence of rural population increase.<sup>2</sup> Much of the increase in rural population this decade can be attributed to urban to rural migration; during the 1990's demographic data show that there has been an 11% out-migration from metropolitan to rural America.

Regionally, population gains have varied, but even in the Midwest, the area suffering the greatest population losses during the 1980s, population shifts have been dramatic:

- Since 1990, Iowa has had 45 counties increase in population, as compared to 7 during the 1980's;
- During the 1980's only 10 Nebraska counties saw population gains; 47 have done so since 1990;
- Missouri showed a net outmigration of 65,000 in the 1980's; since 1990 there has been a net in-migration of 120,000, almost all settling outside the Kansas City and St. Louis metro areas.<sup>b</sup>

Such population gains, which can only increase with the extended capability for economically productive workers to live where they choose, should be sufficient justification for the rapid, escalated deployment of a rural telecommunications infrastructure.

Telecommunications services have the potential to be the irrigation system that can help produce a bumper crop of new economic opportunities in rural America. Telecommunications technology, because it has the ability to mitigate the impact of the distance from remote markets, holds promise to allow rural communities to reestablish their economic bases in ways that have not been heretofore possible.

8. IN GENERAL, WHAT FORMS OF ADVANCED TELECOMMUNICATIONS CAPABILITY WILL RURAL AREAS NEED MOST? ARE THEY THE SAME AS, OR DIFFERENT FROM, THOSE IN OTHER COMMUNITIES? [NOI ¶ 65]

We encourage the Commission to view the telecommunications needs of rural areas no differently than that of other areas. In the aggregate, rural communities require the same capabilities as any other communities. Although not all communities will require all services, the public good is best served when rural community affluence or proximity to population centers do not determine accessibility and connectivity. The Commission is therefore encouraged to adopt a coherent national telecommunications policy which would function to reduce the negative influence of space on rural connectivity and access to advanced telecommunications services.

Rural communities need access to bandwidth with sufficient capacity to simultaneously handle voice, data and video. The penetration of telecommunication technology into all

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<sup>2</sup> From 1990-96 rural America's population grew by 5.8%, only slightly less than the 6.7% rate for the country as a whole. Furthermore, the rate of nonmetropolitan growth has been twice as great during the same six-year period than it was during the 1980's. From 1990-1996, nearly three-fourths (74%) of all U.S. non-metropolitan counties saw a population gain, as compared to only 45% during the 1980's. (Office of Social and Economic Data Analysis)

aspects of commercial life make it essential that rural communities have access to the same technologies that their metropolitan counterparts may be taking for granted. For instance, manufacturers of appliances are beginning to install telecommunications capabilities into their products, enabling diagnostics to be run on products from remote sites without having to send out a service technician to conduct an initial inspection. While this will give service companies the potential to provide more efficient service to their urban customers, this technology will be burdensome to rural customers without sufficient bandwidth to allow those connections to be made on a timely basis. The future economic and cultural viability of rural communities, their citizens and their businesses, rests to a considerable degree on their ability to gain access to bandwidth, enabling them to fully participate in an information-based economy.

9. SHOULD "PRICING REFORM" BE CONSIDERED AS A WAY TO REMOVE BARRIERS TO THE DEPLOYMENT OF ADVANCED TELECOMMUNICATIONS CAPABILITY? [NOI ¶ 72]

Suggestions of 'pricing reform' which hold both business and residential prices closer to cost in order to equalize market incentives across sectors may be looked upon as a potentially valid goal, insofar as the application of universal service mechanisms to high cost areas is assured.

10. TO WHAT EXTENT DO UNIVERSAL SERVICE SUPPORT MECHANISMS HELP ENSURE ACCESS TO ADVANCED SERVICES -- IF NOT GENERALLY, THEN WITH REGARD TO SCHOOLS, CLASSROOMS, LIBRARIES AND RURAL AREAS IN PARTICULAR? WE ARE INTERESTED IN KNOWING WHETHER THE COMMISSION'S CURRENT RULES IMPLEMENTING SECTION 254(H)(1), AS WELL AS OTHER SOURCES OF FUNDING, ARE RESULTING IN THE DEPLOYMENT OF ADVANCED TELECOMMUNICATIONS CAPABILITY TO SCHOOLS, LIBRARIES AND RURAL HEALTH CARE PROVIDERS. [NOI ¶ 72]

Insofar as E-Rate approval has not yet been forthcoming to the 32,000+ school and library applicants, it cannot be said that universal service programs have resulted in the deployment of advanced telecommunications services to schools and libraries. However, the Rural Policy Research Institute is embarking on a study of the nature and extent of new telecommunications technologies implemented by E-Rate applicants, compared to non-applicants, across geographic, socioeconomic, and density boundaries. Data will be forthcoming.

1. State Telephone Regulation Report
2. Hobbs, Daryl J. and Hobbs, Vicki M.. "Assessing the Extent of and Demand for Telecommunications Infrastructure in Rural America." Chapter in Rural America: Connections to the Future. (Publication pending).
3. Bernt, Phyllis. The Changing Obligation to Serve, NRRI Series, 97-26, pp.18.
4. Messere, Fritz. "New Terms are Needed in Telecommunications" from Understanding New Media (Wadsworth Publishing, forthcoming).
5. Office of Social and Economic Data Analysis, University of Missouri - Columbia.